

REMARKS

The Office Action of July 8, 2008 was received and carefully reviewed. Claims 1-17 and 21-45 were pending prior to the instant amendment. By this amendment, claims 1, 2, 3, 11, 12, 13, 14, 15, and 16 are amended. Consequently, claims 1-17 and 21-45 are currently pending in the instant application, of which, claims 4-9 are withdrawn. Reconsideration and withdrawal of the currently pending rejections are requested for the reasons advanced in detail below.

Claims 1, 11-16, 21-24 and 37-45 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Takafuji et al. (U.S. Patent No. 4,404,578, hereinafter Takafuji). Claims 2, 3, 19, 20 and 25-36 were rejected under 35 U.S.C. §103(a) as being unpatentable over Takafuji in view of Takenaka (JP404152676A). Claims 10 and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Takafuji in view of Nakayama (JP2001028338A). Takafuji, Takenaka, and Nakayama, however, fail to render the claimed invention unpatentable. Each of the claims recite a specific combination of features that distinguishes the invention from the prior art in different ways. For example, independent claim 1 recites a combination that includes, among other things:

“[a] semiconductor device . . . wherein a portion of the third region is convexed or concaved in the direction perpendicular to the carrier flow direction, which is parallel to a plane of the substrate, the convexed portion being a part of the second width, wherein the number of grain boundaries crossing the channel forming region in a width direction of the channel forming region is zero, and wherein the first width is narrower than the second width.”

Independent claims 2, 11, 13, and 15 recite similar features. Independent claim 3 recites a another combination that includes, for instance,

“[a] semiconductor device . . . wherein a portion of the third region is convexed or concaved in the direction perpendicular to the carrier flow direction, which is parallel to a plane of the substrate, the convexed portion

being a part of the second width, wherein the number of grain boundaries crossing the channel forming region in a width direction of the channel forming region is one, wherein the one grain boundary is not overlapped with the convexed or concaved portion in the width direction of the channel forming region, and wherein the first width is narrower than the second width.”

Independent claim 12 recites a further combination that includes, for instance,

“[a] semiconductor device . . . wherein a portion of the third region is concaved in the direction perpendicular to the channel length direction and parallel to a plane of the substrate, the channel forming region including the concaved portion and having the first width, wherein the number of grain boundaries crossing the channel forming region in a width direction of the channel forming region is zero, and wherein the first width is narrower than the second width.”

Independent claim 16 recites similar features. And independent claim 14 recites a further combination that includes, for instance,

“[a] semiconductor device . . . wherein a portion of the third region is concaved in the channel width direction, the channel width direction being parallel to a plane of the substrate, the channel forming region including the concaved portion and having the first width, wherein the number of grain boundaries crossing the channel forming region in the width direction of the channel forming region is one, wherein the one grain boundary is not overlapped with the concaved portion in the width direction of the channel forming region, and wherein the first width is narrower than the second width.”

At the very least, Takafuji fails to disclose or suggest any of these exemplary features recited in the independent claims 1, 2, 3, 11, 12, 13, 14, 15, and 16.

Specifically, as amended, independent claims 1-3, 11, 13, and 15 recite “the convexed portion being a part of the second width,” and independent claims 12, 14, and 16 recite “the channel forming region including the concaved portion and having the first width.” In addition, claims 1, 2, 11, 12, 15 and 16 recite features that include the number of grain boundaries (in some cases, crossing the channel forming region in a width direction) of the channel forming region is zero. Furthermore, claims 3, 13 and 14 recite features that include the number of grain boundaries crossing the channel forming region in the width direction of

the channel forming region is one, and the one grain boundary is not overlapped with the convexed (or, in some cases, concaved) portion in the width direction of the channel forming region. Support for the aforementioned features is found, at least, in FIGS.16A-17E.

It is duly noted that the present invention has advantages in combination of the convexed or concaved portion and the grain boundary as shown and described, for example, with reference to embodiment 5. With respect to claims 1, 2, 11, 12, 15 and 16, the cited references, alone or in any proper combination, fail to disclose or fairly suggest the number of grain boundaries crossing the channel forming region in a width direction of the channel forming region is zero. With respect to claims 3, 13 and 14, the cited references, alone or in any proper combination, fail to disclose or fairly suggest the combination of the convexed or concaved portion in the width direction of the channel forming region and the grain boundary, (e.g., the one grain boundary is not overlapped with the convexed (or concaved) portion in the width direction of the channel forming region) as recited in the present claims. At best, Takenaka discloses the one grain boundary is located at an intermediate point of a channel region. This, however, is entirely different from the present invention.

Further, page 2 of the Office Action, the Examiner asserts that a first region and a second region correspond to elements 5 and 6 of Takafuji. However, Takafuji discloses elements 5 and 6 to be a source electrode and a drain electrode, respectfully. Also, the Examiner asserts element 2 as a third region, however, Takafuji discloses 2 is a gate electrode. None of the elements, purported by the Examiner, readily translate into the claimed first, second, and third regions as recited by the present invention. Thus, the rejection is improper for not providing clear evidence of each of the claim limitations being taught or suggested in establishing a *prima facie* case of obviousness as required by the M.P.E.P.

In accordance with the M.P.E.P. § 2143.03, to establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In *re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” In *re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 196 (CCPA 1970). Therefore, it is respectfully submitted that neither Takafuji, Takenaka nor Nakayama, taken alone or in any proper combination, discloses or suggests the subject matter as recited in claims 1, 2, 3, 11, 12, 13, 14, 15, and 16. Hence, withdrawal of the rejection is respectfully requested.

Each of the dependent claims depend from one of independent claims 1, 2, 3, 11, 12, 13, 14, 15, or 16 and are patentable over the cited prior art for at least the same reasons as set forth above with respect to claims 1, 2, 3, 11, 12, 13, 14, 15, and 16..

In addition, each of the dependent claims also recites combinations that are separately patentable.

In view of the foregoing remarks, this claimed invention, as amended, is not rendered obvious in view of the prior art references cited against this application. Applicants therefore request the entry of this response, the Examiner’s reconsideration and reexamination of the application, and the timely allowance of the pending claims.

In discussing the specification, claims, and drawings in this response, it is to be understood that Applicant in no way intends to limit the scope of the claims to any exemplary embodiments described in the specification and/or shown in the drawings. Rather, Applicant is entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

Should the Examiner believe that a telephone conference would expedite issuance of the application, the Examiner is respectfully invited to telephone the undersigned patent agent at (202) 585-8316.

Respectfully submitted,

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